STRATEGIC INVESTMENTS FOR OUR FUTURE:

MEETING FOREIGN ECONOMIC COMPETITION BY INVESTING IN HUMAN CAPITAL

Senate Special Committee
on Long-Range Policy Planning
Senator William B. Golden, Chairman

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The Massachusetts Senate Special Committee on Long-Range Policy Planning was created for the purpose of investigating the major economic, technological and social trends which will significantly affect Massachusetts and its citizens through the remainder of this century.

This report examines how the United States and Massachusetts compare with some of our international competitors in five critical human resource areas: education, training, child care, health care and housing. The report finds that both the United States and Massachusetts lag behind foreign countries in most areas. In the report the committee calls for the development of a plan of strategic investment in human capital in order to meet the challenge of foreign economic competition.

TABLE OF CONTENTS

I. INTRODUCTION

Throughout its history, Massachusetts' greatest asset has been its people. The state has limited physical resources: Most of the soil is too rocky for farming; energy, food and raw materials must be imported. Massachusetts has grown and prospered because of the skills, hard work and imagination of its citizens. This was true in the 18th century, when Massachusetts was a major hub for trade involving Europe and America. It was true in the 19th century, when Massachusetts became one of the most important manufacturing centers in the world. With the state a world leader in high technology and financial services, it is equally true today.

Massachusetts now faces a major challenge - meeting foreign economic competition. In the past forty years, the world has changed from a collection of national economies to a single, integrated marketplace. Our performance in this arena will determine the standard of living and the quality of jobs the state economy can offer.

As Massachusetts confronts the challenge of international competitiveness, it must again look to its people. The people of Massachusetts will be the critical factor in the state's

performance in the world economy. In a very real sense, global competition involves not only private firms but individual workers. To compete successfully, Massachusetts' workers must be as productive as workers in Europe, Japan and other industrialized and newly-industrializing countries.

Workers in Massachusetts must be prepared to meet their competition. They need education and training to give them the skills, flexibility and motivation to perform the jobs being created. They need health care and good, affordable housing. They need the means to ensure that while they are working, their children are cared for properly.

Preparing the work force to meet foreign competition is the most important economic role state government in Massachusetts can play. Other important tools that could enhance competitiveness - such as trade policy, monetary policy and reducing the federal budget deficit - are beyond the jurisdiction of state government. Innovative state economic development programs - quasi-public financing authorities, centers of excellence and other public-private partnerships - have shown great promise, but they are, to a large extent, policy experiments that will need years of experience and considerable expansion before they can have a major impact on the economy.[1]

Investing in people, however, is something state government has done for many years. One of the first government "investments in human capital" in the world occurred in Massachusetts in 1647, when the General Court mandated universal

education. State policies have shaped the social systems that determine the productivity of the work force - education, health care, housing, training and day care. The importance of these investments is magnified today by the challenge of foreign economic competition. Massachusetts must look closely at the quality and the magnitude of its investments in people.

This report paper sets forth a framework for analyzing the human capital investments of Massachusetts in an era of global economic competition. Those investments are identified and compared generally with the investments of our international competitors. Finally, the paper offers direction and guidelines for state government policy-makers who make human capital investment decisions. This paper is not intended to be a blueprint. Specific human capital investment programs and policies are not endorsed. Its purpose is to re-orient policy-makers toward the concept of strategic investments in people.

The organization of this report is as follows:
Section II presents background information on the emergence of global competition and how it has affected Massachusetts. Section III examines the concept of investment in human capital as a competitiveness strategy. Section IV describes the investments the United States and Massachusetts have made in human capital in a comparative framework. Section V suggests policy directions for investing in human capital in Massachusetts.

II. THE MASSACHUSETTS ECONOMY AND THE WORLD ECONOMY

Global competition has become a central issue for businesses and governments all around the world. If a nation fails to respond to the challenges of the world economy, its economic well-being is threatened. For many private firms, succeeding in the global economy is a matter of survival. This difficult environment is all the more challenging because it is new. Massachusetts has had important links with other parts of the world for many years. However, the expansion of these links in the past two decades has been so rapid that the state and its private firms have had to make major adjustments. The Massachusetts economy will continue to be shaped by global forces.

The International Environment

In the immediate post-World War II years, the United States did not have to worry about economic competitiveness: There was no competition. Europe and Japan were in ruins; the Soviet Union's industry had been destroyed; and poverty gripped the less developed countries of Asia, Latin America and Africa. This unique situation did not last long. With the United States' help, Europe and Japan rebuilt their physical infrastructures. As foreign companies copied American products and processes, the United States saw its edge in advanced technology erode. Successful management techniques developed by American firms also were copied by foreign competitors.

By the 1960s, American companies were beginning to lose shares they had held in foreign markets. In the 1970s, the decline in competitiveness hit home, as American firms lost shares in the domestic market. The United States in the 1970s also faced a new class of competitors - the newly-industrializing countries of East Asia and elsewhere. The abundance of cheap, unorganized labor in these countries presented a serious challenge to American manufacturing operations. American agriculture suffered a similar relative decline in the post-World War II era. Developing countries - including Argentina, Brazil and India - not only stopped importing food from the United States but began exporting food themselves. Meanwhile, Canada, Australia and Europe became formidable competitors to the United States in world agricultural markets. Between 1950 and 1986, the United States lost 30 percent of its market share of total world exports.[2]

The most striking indication of the decline in U.S. competitiveness is the trade deficit. After decades of trade surpluses, the United States in the early 1970s started running small deficits. In the late 1970s and the 1980s, the deficit grew dramatically. By 1987, the United States imported $171 billion more than it exported. Other indicators of the erosion of America's ability to compete are low productivity growth, massive foreign debt and a stagnant standard of living.

Coupled with the decline in American dominance during this period was the phenomenal expansion and integration of the world economy. The total volume of world trade has increased

exponentially since 1948. A rapid growth in foreign investment also occurred during this period, most of it after 1960. This increase in transactions across national borders created a growing interdependence among nations and businesses drawn into the world economy.

The globalization of national economies occurred for a number of reasons. First, after World War II the United States created and maintained an open world trading system, using its power to discourage protectionism. The second and perhaps most obvious reason is what political economist Raymond Vernon has called "the spectacular shrinkage of space."[3] Major advances in transportation, as well as revolutions in information technology and telecommunications, made possible an explosion in international commerce. The 1950s witnessed the development of commercial air travel, transatlantic telephone cables, and computer communication networks. Computerization and computer networks allowed businesses to coordinate production, marketing and financial management across national borders. Ocean-going vessels and rail remained the dominant means of moving goods around the world. However, the development of new product technologies - the computer chip, in particular - reduced the size and weight of goods and thereby drove down transportation costs.

A third major factor in the globalization process was the growth of multinational corporations. Multinationals had existed for many years. They had developed the oil fields of the Middle East and extracted raw materials in less developed countries all

over the world. However, in the 1960s and 1970s, multinationals began to move into manufacturing. Firms based in the United States and other industrialized countries began setting up manufacturing facilities in foreign countries to serve local markets. Other companies started manufacturing operations in foreign countries in order to export products back to home markets or to markets in other countries. Some multinationals became what are known as "global corporations," in which the various stages of production - design, manufacturing, assembly and marketing - are spread out around the world to gain comparative advantage at each stage.

The emergence of globalization has radically altered the way American firms do business. As recently as 1960, few companies in the United States needed to be concerned about foreign competition. Today, most American manufacturers either export to foreign markets or are affected by foreign competition in the domestic market. Approximately 25 percent of all goods produced in the United States were subject to foreign competition in 1965, according to a Congressional study. Twenty years later, the figure was 75 percent.[4] Aggregate statistics for the economy as a whole also present a picture of how foreign trade has affected American business. In 1960, imports and exports were less than 10 percent of the U.S. gross national product. In 1985, they were nearly 25 percent.[5]

Commenting on this dramatic shift, the President's Commission on Industrial Competitiveness, reported in 1985, "Quite simply, no longer is there a truly domestic U.S. economy. We are inextricably linked to our trading partners in countless important ways."[6]

The Impact on Massachusetts

Massachusetts historically has had an open economy. The state exports and imports a large share of the goods and services it produces and consumes. Much of this trade is between Massachusetts and other parts of the United States, although trade with foreign countries has long been important to the state's economy. This tradition of openness to economic forces beyond Massachusetts' borders gives the state an advantage in an era of heightened interdependence. Business practices and business institutions in Massachusetts have evolved in a way that enhances competitiveness. Massachusetts firms and the people of the state have learned - out of necessity - to cope with vulnerability to outside economic forces. Because of its openness, the state economy has had to undergo a number of transitions. The experience has not always been easy.

Manufacturing in America was started in Massachusetts. In the first half of the 19th century, the state's traditional economy was transformed by the development of manufacturing industries, principally, textiles, machine tools and shoes. Toward the end of the century, these Massachusetts industries began to face competition from manufacturers in the southern United States,

where wage rates were lower and labor was less militant. The pressure of this competition caused the steady decline of traditional mill-based manufacturing in Massachusetts. The final blow came in the 1960s and 1970s, when manufacturers began shifting operations to less developed countries. These countries possessed an even greater comparative advantage in labor costs than the South. The impact on the Massachusetts economy was devastating. The unemployment rate in 1975 was 12 percent - three and a half points higher than the national average. A national recession in the early 1970s was a near depression in Massachusetts.

From the latter half of the 1970s into the 1980s, the state's economy executed a dramatic turnaround. The unemployment rate fell to 3.8 percent in 1986, while per capita income increased sharply, exceeding the national average by 15 percent in 1985. A variety of explanations have been advanced for this economic revival - among them state economic development policies, increased defense spending, slow population growth, and property tax cuts. However, the role of international economic forces in the recovery should not be overlooked.

At the same time that the location of mature or "medium tech" industries was shifting to low-wage countries, opportunities were opening up in global markets for high technology products. Massachusetts firms, particularly those in the electronics and computer industries, were able to flourish in these markets. Also during this period, global markets for business and financial

services developed because of advances in information and telecommunications technologies. Boston emerged as a world center for these fast-growing industries. Thus, the principal wealth-producing industries that emerged in Massachusetts since 1975 - high technology manufacturing and financial and business services - have succeeded by competing in global markets.

World economic forces will continue to have an important impact on the Massachusetts economy. Barring a dramatic change in the world economy, the principal industries of the commonwealth will compete in global markets. Electronic equipment and computers are likely to remain the core of Massachusetts' industrial base. These industries are increasingly exposed to competition from Japan and other countries in East Asia. Also, many of the so-called "industries of the future" - biotechnology, advanced software, robotics, polymer plastics and lasers - are being developed in Massachusetts. These developing industries are the subject of intense international competition. Our success in meeting this competition will determine the future growth of these industries, and ultimately the standard of living for Massachusetts citizens in the 21st century.

III. HUMAN CAPITAL INVESTMENT AND ECONOMIC COMPETITIVENESS

The concept of human capital investment was developed by economists in the 1950s and 1960s. Researchers studying U.S. economic history concluded that improvement in the quality of the work force was a major factor in U.S. economic growth.[7] This notion contradicted classical economic theory, which viewed labor as homogeneous and saw productivity increases coming only from machines.

Human capital investments refer to any investments - other than physical ones - that make labor more productive. Education is the most commonly cited human capital investment. Health care, training, day care and housing also are important investments in human capital. The concept can be extended to include any number of human services, from drug treatment to food stamps to prison reform, although some are clearly more important than others.

Compelling evidence indicates that investment in human capital is an effective economic development strategy. Studies have found correlations between human capital investments and national economic performance. For example, countries with high economic output per capita also tend to have high secondary education and college enrollments. Other research has focused on the individual, demonstrating that individual workers earn more after investments in education. Also, a considerable amount of economic growth has been measured that cannot be traced to any other source.[8]

Business for some time has recognized the importance of human capital development. In the 1970s, management and business schools began teaching that upgrading the work force can greatly enhance a firm's competitive performance.[9] Many company personnel departments were renamed "human resource" offices. The changes in many firms were not just cosmetic. Some companies began offering educational leave to employees. Others built jogging tracks and health clubs for employees. Others offered psychological or alcoholism counseling.

With the issue of economic competitiveness assuming center stage in the United States in the 1980s, human capital investment has gradually received more attention. Much of the national debate on competitiveness has focused either on macroeconomic issues - trade policy, interest rates, the federal budget deficit - or on sector-specific industrial policies - such as the Chrysler bailout or the Sematech experiment. However, the question of human capital development also has been raised. Probably the most forceful and effective statement on the issue was the report of the National Commission on Excellence in Education, <u>A Nation at Risk</u>, which sparked a national educational reform movement. The report stated:

> History is not kind to idlers. The time is long past when America's destiny was assured simply by an abundance of natural resources and inexhaustible human enthusiasm, and by our relative isolation from the malignant problems of older civilizations. The world is indeed one global village. We live among determined, well-educated and strongly motivated competitors. We compete with them for international standing and markets, not only with products but also with the ideas of our laboratories and

neighborhood workshops. America's position in the world may once have been reasonably secure with only a few exceptionally well-trained men and women. It is no longer.[10]

Other important statements on the role of human capital development in economic competitiveness have been issued in recent years. In 1987, the Committee for Economic Development, a research organization for business, issued a forceful report calling for major educational investments in disadvantaged children.[11] The 1985 report of the President's Commission on Industrial Competitiveness cited the critical role of human resources in meeting the challenge of foreign competition.[12]

Human capital investment has important advantages over other competitiveness strategies. Sector-specific industrial policies tend to clash with a basic tenet of American political culture - the belief that markets are the best way to allocate economic resources. "Picking winners" among competitors in the private sector is a difficult concept to sell in this country. Although the United States may eventually develop something resembling a national industrial policy, building and sustaining a consensus for such policies now is difficult.

Investment in human capital, however, is accepted as a legitimate and important function of government in the United States. Most of these investments by governments are seen as the provision of collective goods. The strategy is especially important for state and local governments, which have limited economic development options. Trade policy, exchange rates, immigration and emigration policy, and tax policies are largely

the province of the federal government. On the other hand, states have been investing in human capital longer than the federal government has.[13]

As a society develops technologically, its human capital needs change. An agricultural society needs workers with strong arms and backs. A society based on traditional manufacturing needs disciplined workers who can perform repetitive, routine tasks. A knowledge-based society - which the United States is rapidly becoming - needs workers with flexibility, creativity and a range of technical skills. Education assumes greater importance in a knowledge-based society. Even in the manufacturing sector, jobs require more intellectual and fewer physical skills. Flexibility - achieved through a sound basic education and retraining programs - enables workers to make job and career changes necessitated by changes in technology and the world economy. Housing must be both comfortable and affordable to give workers a sense of well-being that can enhance productivity. Health care acquires a new dimension as a society moves into the post-industrial era. Workers need to be free not only from debilitating natural illnesses, but also from the so-called "diseases of civilization," such as cardiovascular disease, lung cancer, automobile accidents and stress-related ailments.

Human capital investments are important in any economy, whether it is closed or open. However, they are especially important in economies that are exposed to the world economy.

Human resources have become the single most important source of comparative advantage in global industries.

One of the most striking characteristics of the world economy today is that most of the competition among the advanced countries is in the same products. These products have large knowledge inputs. The critical industries in the world economy today - semiconductors, computers, electronics and even automobiles - have become knowledge-intensive. In the past, much of world trade was determined by specialization based on physical characteristics, such as climate and mineral deposits. A country with one physical resource base produced one good; a country with a different resource base produced a different good; and the two countries traded their products. Now the major players in the world economy are producing and trading the same goods. Comparative advantage is determined not by climate and mineral deposits but by human resources. Societies that succeed in the world economy will be those that have prepared their work force for this competition.

IV. HUMAN CAPITAL: MASSACHUSETTS, THE UNITED STATES AND THE WORLD

Human capital development is an important barometer of international competitiveness. Societies that invest wisely in human capital have an edge in the global economy both now and in the future. Before we consider defining a human capital investment strategy for Massachusetts, we need to assess where we stand with these investments today. This section attempts to locate the approximate position of Massachusetts and the United States relative to international competitors in five critical human resource areas - education, training, health care, housing and child care. These comparisons are not meant to be definitive. However, they do help to identify those areas that need attention if we are to achieve a high level of international competitiveness.

Education

Education is the most important human capital investment a society can make. Research has demonstrated the important contribution investments in education can make to economic growth.[14] Modern economies need workers with sound basic education and technical skills.

The problems of the competitiveness of American education were most forcefully detailed in the landmark report, A Nation at Risk.[15] The study cited the poor comparative performances by American students in achievement and aptitude tests, high illiteracy rates among adults and children, and a low level of

understanding of the critical areas of science and mathematics. The study also cited curriculum deficiencies, declining expenditures on textbooks, low teacher pay, and school days and years that are shorter than most other industrialized nations.

A 1988 follow-up report to A Nation at Risk by Secretary of Education William J. Bennett found improvements in some areas of student performance but argued that more progress is needed in a number of areas to bring American students to the level of many of their foreign competitors. "We are still at risk," Bennett wrote. "The absolute level at which our improvements are taking place is unacceptably low. Too many students do not graduate from our high schools, and too many of of those who do graduate have been poorly educated."[16]

Recent data on educational performance indicate that the United States is still in a vulnerable position relative to its economic competitors:

-The United States ranks 49th out of the 159 members of the United Nations in literacy rates, behind most of its economic competitors in Western Europe and East Asia.[17] Approximately 27 million people - 20 percent of the adult population - are functionally illiterate. The numbers increase by approximately two million a year, as one million teenagers leave school without functional literacy and one million non-English speaking immigrants arrive.

-The United States ranks 24th in the world in books per capita, behind most of its economic competitors.[18]

-A survey of experts on comparative education rated the United States' school system behind the systems of most of its competitors in mathematics, science, native language and foreign language.[19]

-In science tests given to students in 17 countries, U.S. students did poorly. American 14-year-olds finished third from the bottom, tied with Thailand and Singapore. High school seniors from the United States scored last in biology tests, and third from last in chemistry tests.[20]

-American students performed poorly in international math and algebra tests. American 17-year-olds scored in the lowest fourth of all nations in five of six basic mathematics exams.[21]

-Dropout rates in the United States are high by standards of industrialized countries. Approximately 27 percent of U.S. students do not finish high school. In Japan, the figure is less than 10 percent.[22]

The Massachusetts education system has performed as well as or better than the rest of the country, according to most measures of educational performance. The projected dropout rate for students in the school system in 1986 was 19.5 percent, well below the national figure. In 1986, Massachusetts ranked 18th among the fifty states in graduation rates. However, this statewide average conceals vast differences among the state's school systems. Some systems have dropout rates of virtually zero while others approach 50 percent. In four years, the dropout rate of the Boston public schools climbed from 36 to 46 percent.[23]

Massachusetts high school seniors in 1988 scored slightly better than the national average in verbal Scholastic Aptitude Test scores and below the national average in math SAT scores.

In 1987, Massachusetts ranked sixth among the fifty states in expenditures per pupil and ninth in average teacher salaries. The student-teacher ratio in Massachusetts was the fifth lowest in the country.[24]

State government has attempted to reduce the inequality among school systems around the Commonwealth. The 1985 Education Improvement Act provides special state aid to poorer communities which spend less than 85 percent of the state average on schools. The law also provides incentives for teaching excellence as well as comprehensive assessment and monitoring programs. Nevertheless, despite these efforts, a wide range of educational quality among school systems in Massachusetts persists.

Massachusetts is well-known for its public and private higher educational institutions, which are regarded as among the best in the world. The role of these institutions, MIT in particular, in the state's recent economic turnaround has been well documented.[25] Massachusetts today ranks first among the fifty states in graduate student enrollments in science and engineering.[26] This represents a significant investment in human capital that can serve industries that rely on advanced technology. Massachusetts has a large and diverse public higher

education system, which serves more than 60 percent of state residents who attend college. The state has during the past five years stepped up its investment in this system, by increasing faculty salaries and student scholarships and by making major improvements in the physical plants.

Training

Workers in the United States and other advanced industrial societies must constantly develop new skills. The rapid pace of technological change, coupled with the integration of national economies into the global economy, can transform entire industries in a matter of years. It has been estimated that workers of the future will have at least two or three different careers in their lifetime.[27] Training programs are necessary not just to help workers cope with this dislocation but to ensure that industries have the human capital they need to compete. The discussion that follows focuses on government-assisted training programs for workers who are without jobs. Because of the dynamism of most industries, retraining and the development of new skills is necessary for the employed as well as the unemployed. However, until now, most of the responsibility for retraining those who have jobs has been assumed by private firms.

Government training policies in the United States have been less comprehensive and consistent than those in other industrialized countries. Also, government tax and incentive policies tend to favor investments in plant, equipment and

technology rather than investments in worker training. The United States spends more than ten times as much on capital investment than it does on training.

The principal federal government training program is the Job Training Partnership Act of 1982. This program, which is administered largely by the states, provides training and placement services for workers who have been displaced from their jobs. The act focuses on three specific areas: Training and placing hard to employ and disadvantaged workers, matching public assisted training programs to real-world business needs, and coordinated employment, training and referral services.

The effectiveness of the program has been the subject of some debate. Concern has been raised that the program does not begin to reach all eligible displaced workers in the country. Presently, the Job Training Partnership Act serves less than 200,000 workers. Through the rest of the decade, as many as 400,000 workers per year will need extensive retraining. Meanwhile there is a possibility that funding for the program will be trimmed in the future.[28]

Other countries that have had more experience with dislocations caused by world economic conditions have more comprehensive training programs. In France, employers are required to finance worker training. A total of 1.1 percent of the money a firm spends on wages must be devoted to training programs. In practice, this has meant $10 billion in annual training programs for French firms. Labor unions have supported

the effort. Displaced workers in Sweden are trained in government sponsored programs and continue to receive regular paychecks. Labor programs in Sweden make up between 2 and 3 percent of GNP and 5 to 8 percent of government expenditures. Canada spends more than $1 billion or 1 percent of its budget on adult training programs. Tuition-free courses are offered in community colleges and industrial training is supplied by employers and paid for by industry and government.

Massachusetts has one of the most comprehensive worker training systems in the United States. The Employment and Training Choices program assists welfare recipients with training, child care, health insurance and job placement. The ET program offers participants a choice among career counseling, remedial education, skills training, on-the-job supported work and direct job placement. One year after they graduated, 86 percent of the ET participants were still working.[29]

The Bay State Skills Corporation, created seven years ago, acts as a funding mechanism and a catalyst to public-private training partnerships. BSSC shares the cost with businesses to award grants to educational institutions which link up with one or more private companies and together train people for jobs in high growth fields. The Industrial Services Program was created in 1985 as a result of the Massachusetts Mature Industries Legislation. The ISP serves a wide range of functions for mature industries; ISP provides consulting services and financing for companies, as well as re-employment and retraining programs for workers who have

lost their jobs due to layoffs or plant closings. When a massive layoff or a plant closing is about to occur, the ISP establishes a Worker Assistance Center. These centers provide workers with job search assistance, training and education programs. Worker Assistance Centers in Massachusetts have some of the best success rates in the country; overall 79 percent of the workers who use the centers are placed in jobs. On average, workers begin jobs at 87 percent of their old wages.

Health Care

A healthy economy needs a healthy work force. No matter what the technological base of a society is, workers need to be free from debilitating diseases. In the new information and knowledge-based industries, a sense of well-being can enhance productivity. A good health care system is particularly important for the young, who are the workers of the future. Investments in the health of young people can pay many dividends in future productivity.

The United States compares poorly with other industrialized countries on the standard measures of health - life expectancy and infant mortality. In a recent study of twenty industrialized countries, the United States had the highest infant mortality rate, with 10.4 deaths per 1,000 of infants under age one.[30] Deaths of infants occur in the United States at twice the rate in Japan.[31] Infant mortality rates in the United States are falling but at a slower rate than they had in the past.[32] In a

congressional comparison of six industrialized nations, the United States rated fourth in life expectancy for males, behind Japan, Sweden, Great Britain and Canada. Only Mexico and West Germany had shorter life expectancies.[33]

A significant body of research indicates that the health characteristics of a population are, in large measure, determined by the health care delivery system.[34] Comparisons of countries with similar climates and GNPs and reveal that differences in infant mortality and life expectancy are caused by the health delivery systems. For example, the United States has a lower life expectancy rate than Canada, despite having a slightly higher GNP and a more temperate climate. However, Canada has universal health insurance and the United States does not. The United States is the only industrialized nation other than South Africa without national health insurance. The health care system in the United States is a patchwork of private insurance, health maintenance organizations and public insurance, i.e. Medicare and Medicaid.

The health problems of the U.S. population are not caused by a decline in aggregate spending on health. The United States devotes a large portion of its national resources to health care. In recent years health care spending has risen by 5.5 to 6 percent annually after adjusting for inflation.[35] Most of the growth in spending results from advances in technology. Also, the organization of the health care system in the United States tends to encourage duplication of expenses. In other countries, there

are a range of levels of health treatment facilities, so that not all facilities are equipped with advanced technologies. In this way the most expensive equipment is used in the most efficient manner. In the United States, however, most hospitals are equipped with advanced technology, and patients not needing this technology must pay for its presence in the hospital. An aging population also contributes to the escalation in health care costs.

Recently the health care system in the United States has been plagued by a severe shortage of nurses. The problem has occurred for a number of reasons, not the least of which is the relatively low pay nurses receive. The salary differential between nurses and physicians in the United States is among the greatest in the world.[36]

The Swedish government provides the most comprehensive health care of any country. Likewise, the public expenditure on health care in Sweden is among the highest in the world, $924 per capita in 1980. The Swedish system is divided into levels. Most care is provided on the local level by community health centers. Counties provide more specialized care, and regional establishments provide care for the most complex cases.

The British system also is divided into levels: National, regional, area and district. Niney-four percent of the population is publicly insured. General government revenues pay for 85 percent of the cost of this insurance, with the remainder collected from employer/employee contributions and patient cost-sharing. Some health care is rationed for citizens over 55.

Salaries for doctors and nurses in Britain are lower than those of any other nation in the European Economic Community. Like the United States, Great Britain has been fighting escalating health costs. Britain has limited the growth of health spending to an annual rate of one-half of one percent. However, this has been accomplished by withholding investments in infrastructure, resulting in a health care system that is rapidly becoming outdated.

Less than one percent of the West German population is without health coverage. Over 50 percent of the population belongs to a public major health insurance fund, similar to Blue Cross/Blue Shield. The remainder of the population is covered by private health insurance or a trade health insurance fund. This insurance coverage is paid for by the employers and employees. Of the major industrialized nations, West Germany has one of the highest ratios of physicians per capita, one physician per 490 citizens. Physicians in Germany are among the highest paid doctors in the world.

The Canadian health care system is decentralized, with the provinces designing and administering health care programs. Like the British and Swedish systems, care is provided at different levels. Community health care centers offer basic care, while district hospitals or large teaching hospitals provide more complex care. Canada has been far more successful at controlling

health care costs than the United States. In 1960, both countries spent approximately 5 percent of their GNP for health care. By the early 1980s the U.S. was spending 11 percent and Canada only 8 percent.

Japan boasts one of the highest life expectancy rates in the world, 73.3 years for males and 78.8 for females. Japan also has fewer physicians per capita than most industrialized countries. The compulsory national health insurance plan provides citizens with a choice among eight alternative non-profit plans. The average length of a hospital stay in Japan is about six times as long as in the U.S. This is explained however, by the fact that hospitals in Japan often serve as elderly care facilities.

Massachusetts has performed well in health care compared with the rest of the country. In 1985, Massachusetts had the eighth lowest rate of infant mortality in the fifty states. The state was fifth in physicians per capita and fifth in hospital beds. A baby born in Massachusetts in 1980 could be expected to live 75 years - 1.3 years more than the national average.[37] These statistics mask some greater problems - the infant mortality rates are 135 percent higher for black children than for white children.[38] Anti-hunger advocates claim that a child born in Jamaica or Costa Rica has a better chance of living to age one than a non-white child born in Boston.[39]

This year, Massachusetts became the first state in the nation to mandate universal health insurance. This new program will provide health insurance to the 600,000 people who currently are

without coverage. The fundamental principle behind the bill is that all persons in the Commonwealth should have access to a basic level of health care. Another principle of the legislation is that the cost of providing such care should be shared by the Commonwealth, consumers and businesses. The bill includes incentives and penalties in the health care financing system to ensure that each sector pays its share of health care costs.

Housing

Housing is critical to the performance of a modern industrial economy. From the individual worker's perspective, comfortable and affordable housing promotes a sense of security and well-being. If a worker is poorly housed, his or her productivity can suffer. From a national economic perspective, an abundant supply of affordable housing is necessary to facilitate labor mobility. If a nation has insufficient housing, workers cannot move from depressed areas with high unemployment to growth areas or boom towns. From a state economic perspective, good housing is necessary because of competition with other states for private industry. If all other factors are equal, a firm will tend to locate and stay where there is affordable housing because it enhances the firm's ability to attract qualified labor. Furthermore, a state may have an outstanding education system that develops high quality human capital, but if housing is not available for these workers, they will be lost to other states.

A shortage of affordable housing afflicts almost every country in the world. Modern industrial economies are very good at

producing all kinds of consumer goods, from electronic gadgets to automobiles. However, they have not proven to be very effective at producing housing for an expanding population. Mass production of housing has never been successful. The dwindling supply of buildable land is another major constraint on efforts to ensure an adequate supply of affordable housing.

The problem of housing creates a paradox of economic success. Areas that achieve economic growth attract workers. New workers demand housing, driving up its cost. The resulting shortage of affordable housing threatens further economic growth. Thus, areas that hope to achieve and maintain economic success, must find ways to maintain an adequate supply of affordable housing.

The extent of the housing problem in the United States can be seen in a number of areas. Levels of home ownership have been falling every year since 1980 after rising steadily for the previous thirty-five years.[40] In 1981, 59.3 percent of the 30 to 35-year-olds owned homes; by 1985, the proportion had dropped 5 percent.[41] For low-income families, the gap between the demand for and the supply of affordable housing is growing. It has been estimated that by 1993, there will be 3.7 million more families needing such housing than units available. The growing phenomenon of homelessness is perhaps the most striking indication of the housing problem in the United States. Estimates of the homeless range from 350,000 to 3 million.[42] Families with children now make up between 20 and 30 percent of the homeless population.[43].

The United States' housing problem has serious economic, as well as human costs. Severe housing shortages in many parts of the country limit labor mobility. While New England and other parts of the Northeast are in the midst of an economic resurgence that normally would attract workers, the area is suffering from severe labor shortages, particularly in the service sector. Housing prices in the Northeast have skyrocketed as a result of the economic revitalization.

Other developed countries have housing problems comparable to those in the United States. The most expensive housing in the world is in Tokyo, where two-bedroom apartments located an hour and a-half from downtown start at one million dollars.[44] The cost of housing in Japan has risen to the point that the average salary worker cannot afford to buy a condominium or house.[45] Land prices in Tokyo tripled between 1985 and mid-1987.[46] The Japanese government has been slow to find solutions to the problem. Government policies that favor farmers have tended to drive up the price of land and to keep many acres of empty farmland undeveloped in prime urban areas.

Great Britain also has a serious housing problem due in large part to the changing demographics that also are seen in other developed countries - more divorces, young adults marrying later and the elderly living longer. The result is more people demanding housing.[47] Beginning in 1981, for the first time since World War II, the net increase in the housing stock was less than the net increase in households.[48] Construction of housing for

London's poor has decreased from an average of 20,000 units a year in the 1970s to a little more than one thousand a year in 1987.[49] Britain also has had to face a homelessness problem. The most recent estimates place Britain's homeless population at 140,000.[50] Although the problem is not as severe as it is in the United States, the government has felt compelled to resort to the costly policy of housing people temporarily in "bed and breakfasts" to cope with the problem.

Other industrialized countries have had to deal with serious housing problems. In West Germany, the cost of building a house doubled between 1977 and 1981. In Italy, an average two-bedroom condominium in Rome or Milan costs between $320,000 and $480,000.[51] One of every five couples in Italy must live with relatives because they cannot afford housing on their own.[52] The cost of housing in Paris has tripled in the past five years, and an average two-bedroom apartment now costs between $200,000 and $300,000.[53] An estimated 10,000 homeless live on the streets of Paris.[54]

The housing problem in Massachusetts has been particularly acute, in large measure because of the recent success of the Massachusetts economy. A booming Massachusetts economy has pushed housing prices out of reach for many people. The median price of a single-family home in the Boston metropolitan area increased 99 percent between 1982 and 1986. Average annual wages during that time increased only 27 percent. In 1986 the metropolitan Boston area had the widest housing affordability gap of any metropolitan

area in the country.[55] In a recent survey, business leaders in New England cited the cost of housing as the largest obstacle to future economic growth in the region.[56]

Massachusetts has developed a number of programs to address the problem. The Massachusetts Housing Partnership, MHP, created in 1985 brings together business and government on its 30-member board. The Partnership's mandate is broad: To produce affordable housing for those in need, to manage local growth through local policies which provide for affordable housing, to provide specialized housing for those with special needs, and to reclaim abandoned and vacant properties.

The MHP has a wide variety of tools it can use. The Homeownership Opportunity Program, HOP, provides first time home buyers a chance to buy their own home at reasonable prices and financing. HOP combines low interest mortgage financing from the MHFA with a new fund to further reduce interest rates. HOP creates a revolving store of low cost housing as houses bought under this program are limited in their resale price. The Municipal Advance Program, MAP, enables cities and towns to purchase professional consulting services to plan housing initiatives. The Technical Assistance Advance and Front-End Loans allow non-profit developers to carry out planning tasks to create affordable housing.

Other state programs that ease the housing problem include State Housing Assistance for Rental Production, SHARP, and Tax

Exempt Local Loans to Encourage Rental Housing, TELLER. Private or non-profit developers can apply for both programs, which allow for decreased interest on mortgages for production of mixed-income rental housing.

Child Care

Perhaps the most dramatic change in American society in the past twenty-five years has been the large-scale entrance of women into the out-of-home work force. If existing trends continue, by 1995, more than three-fourths of school-age children and two-thirds of preschool children will have mothers who work.[57] The movement of women into the out-of-home work force in the United States is unlikely to subside because of the high divorce rate and economic realities. For an increasing number of mothers, the income from their jobs represents a necessity as opposed to the supplement to family income it was in the past. Today, only one job in four pays a salary high enough to support a family of four. One quarter of all children live in single-parent homes at some point in their lives, and 90 percent of these homes are headed by women.

Not only do an increasing number of women need jobs, but also the marketplace needs women. With low levels of unemployment and a decreasing pool of eighteen to twenty-four year-olds, women and immigrants represent the only significant additions to the labor force. Two out of three jobs created in the future are expected to be filled by women and immigrants.

Child care policies thus have assumed an increasingly important role in determining the effectiveness of the work force. The lack of reliable, affordable and quality day care can deter potential workers from joining the labor force. Workers who are employed can lose productivity because of child care concerns. Businesses have reported that child care for employees can increase productivity.[58] Employers, however, have been slow to respond to these changes in the demographics of the work force. Less than one percent of the six million employers nationwide offer their workers assistance for child care.

Good quality child care represents an investment not only in the work force of the present, but in the work force of the future as well. Studies of the effects of early childhood education have indicated that children who attend preschool programs have improved literacy, a greater likelihood of completing high school, and a greater likelihood of continuing their education beyond high school.[59] The Perry Preschool Study showed that enriched early childhood education improved the success of the student both in and out of school. Children in the preschool program had better grades, fewer absences and were more likely to continue education than their non-preschool counterparts. Furthermore, by age nineteen, the preschool group's employment experience was better than those without preschool.[60]

The United States has lagged behind other nations in offering child care options for parents. The United States and South Africa are the only industrialized countries that do not provide

some form of parental leave. The federal government does offer tax credits to parents with children in day care, and federal subsidies, mainly through the Social Services Block Grant, have supported day care centers. Head Start is a $1.2 billion program that serves disadvantaged preschool children. States also are developing a broad range of child care programs, and businesses are beginning to offer assistance to employees. However, the child care system in the United States is largely determined by the workings of the marketplace, with private and family centers predominating. Dr. Edward Zigler of Yale University, an expert on day care policy, argues that in the absence of government intervention, a two-tier child care system has evolved in the United States, with the rich obtaining costly but high quality child care and the poor getting inadequate care.[61]

The contrast with other industrialized countries is striking. In France, maternity leave at 90 percent of salary is guaranteed for sixteen weeks. Companies with one hundred or more employees are required to offer two years additional unpaid leave.[62] Approximately 95 percent of three to five year-olds and 15 percent of children under three attend publicly funded pre-primary school.

Sweden offers one-year maternity or paternity leave at 90 percent of salary. Parents also are permitted to work reduced hours until the child is eight years-old.[63] Denmark offers twenty-four weeks of parental leave. Publicly-funded child care centers, which cost parents $115 per month, serve 44 percent of children in Denmark under three and 87 percent of those between

three and five.[64] West Germany and Japan require fourteen weeks of maternity leave; Canada, fifteen weeks; Italy, five months; and the Soviet Union, four months.

Massachusetts has one of the more activist child care programs in the United States. State government has developed pilot programs, licensing requirements and information services all aimed at increasing and improving the supply of child care alternatives. A dozen state Child Care Resource and Referral Agencies serve as brokers, matching parent needs with local day care resources. These agencies also offer training and technical assistance to providers. The Executive Office of Economic Affairs provides information and technical assistance to employers. The Massachusetts Industrial Finance Agency offers loans to stimulate employer investment in day care centers. Wages have been raised for day care workers employed under state contracts. As a model for employers, the state is building new day care centers at six state-owned buildings. Also, the Employment and Training program provides day care for 8,000 present or former welfare recipients.

While Massachusetts is a leader in day care programs, there are still significant gaps in the system. The state does not require private employers to grant any parental leave. According to a recent survey, 40 percent of mothers in Massachusetts who are not in the out-of-home work force, would look for jobs if adequate day care were available. This represents a potential unmet demand

for child care of 51,000 families.[65] Projections show that Massachusetts can expect an increase of 23 percent in the number of child care slots needed by 1995.

V. A HUMAN CAPITAL INVESTMENT STRATEGY FOR MASSACHUSETTS

Investment in human capital is the most effective way state government can enhance Massachusetts' competitive position in the world economy. Because our economic well-being is so closely tied to international competitiveness, human capital investment should be an important priority for state government. Massachusetts leads most states in the nation in most areas of human resource development. However, Massachusetts is in a more vulnerable position compared with our competitors in Europe and Japan. This section of the report outlines how state government might begin to develop a comprehensive human capital investment strategy.

The first step is to recognize the barriers that divisions within government pose to an integrated human capital investment plan. Although state government already has extensive human capital investment programs, each of these programs has a separate mission and approach to meeting its goals. Each is the responsibility of a separate agency or secretariat. Each has its own constituencies that support it in the political arena.

An effective human capital investment strategy would see these programs - whether they deal with education, health care, nutrition, day care or any other human resource area - as part of a larger plan to strengthen the effectiveness of the work force. Perhaps the most important reason not to view these programs in isolation is that they have important effects on each other. Effective education programs can reduce the need for future

training programs. Investments in nutrition can save money on health care later. A Congressional study several years ago quantified some of the interrelationships among human service programs. A dollar spent on childhood immunization saved ten dollars in later medical costs. A dollar investment in quality preschool education saved $4.75 in costs associated with special education, public assistance and crime.[66]

How can we overcome this tendency to consider human capital investment programs in isolation? State government has one planning tool that encompasses all of these programs: The annual budget. The budget, in its final form, is a statement of government's priorities. It details precisely how state government plans to allocate its resources. It is a record of what government has determined to be important.

If Massachusetts is to have an integrated human capital investment strategy, then the state officials who have overall responsibility for the budget - legislators and high level administrators - should develop a human capital investment plan. This plan can be formal or informal. It does not have to be an elaborate, written document. However, budget makers should at least have an awareness of the interrelationships among human capital investment programs. They should have an understanding of the impact that human capital investment programs - individually and together - have on the state's economic future. They should have a genuine commitment to the concept of investing in people.

Budget makers should consider a number of different criteria when assessing human capital investment possibilities. These include:

-The greatest impact on the greatest number of existing or future workers.

-The greatest impact on the work force of firms that compete in world markets.

-The potential for leveraging money or other resources from the private sector.

-The ability to fill gaps in existing human resource development programs.

-The potential to fulfill needs that cannot be met by the private sector.

State government already devotes a great deal of attention to the five human service areas that were the subject of Section IV. However, when these areas are seen as investments in the work force and not purely human services a different perspective on policy emerges. The following are some considerations for policy-makers in each of these five areas.

Education. As a human capital issue, education must be seen as the principal means of preparing people to enter the work force. Because the nature of jobs is changing so rapidly, the nature of education must adjust rapidly as well. Jobs that once required discipline and the ability to follow instructions are

being replaced with jobs that require creativity, flexibility and an ability to think independently. Education must encourage these skills.

Training. Massachusetts has one of the most comprehensive government-sponsored training programs in the United States. Most of these programs are aimed at workers who do not have jobs. These are the people most in need of help. However, from a human capital perspective, training for workers who already have jobs should be promoted as well. Rapid technological change is forcing many firms to re-structure their work force. Effective training programs can facilitate this re-structuring and minimize worker dislocation. Business-labor-government partnerships should be encouraged, especially to assist small business. Many smaller firms, which do not have the resources to establish individual training programs, could develop effective cooperative programs with government assistance.

Child Care. Massachusetts, despite having some of the most progressive child care programs in the nation, has a shortage of affordable, good quality child care. Child care efforts should not be aimed solely at lower income people if human capital development goals are to be achieved. Families of all incomes are faced with child care problems. Because child care concerns are so widespread, government should consider developing programs that offer universal access, perhaps based in the public schools.

From a human capital perspective, the impact of child care on two generations also must be kept in mind. Parents who want to

enter the work force need child care. Also, the quality of child care can affect the development of children. For this reason, day care should be seen as "edu-care," or part of the educational process.[68]

Health Care. Massachusetts has one of the most effective health care systems in the United States. However, gaps in the system - evidenced by poorer performance on standard health measures for certain groups of people - are cause for concern. Some of these gaps may be closed by the universal health insurance law, which was enacted in 1988. Universal health insurance is important from a human capital point of view because most people without health insurance are workers. If their health suffers because of lack of insurance, their productivity is likely to suffer as well.

From a human capital perspective, health care investments in the young are especially important. Money spent on prenatal care and early childhood health programs can lead to healthier adults in the work force of the future.

Housing. Massachusetts' severe housing problems are a threat to the state's economic growth. A shortage of affordable housing exists at all levels of the housing market. The focus of state housing programs has been on low and moderate income housing because that is where the needs are greatest. However, when housing is viewed as a human capital issue, the entire housing market should be considered.

Many Massachusetts employers must compete with firms in other parts of the country for labor. If there is inadequate housing for engineers or scientists or managers in Massachusetts, then employers here are at a competitive disadvantage with employers elsewhere. If Massachusetts' universities, which have been so critical to the state's past economic growth, cannot attract good faculty because of high housing costs in the state, then the competitiveness of the state's economy is further threatened.

Another reason to consider the entire housing market when developing state policies is that conditions at one level affect conditions in others. A shortage of higher-priced housing creates pressures on moderately-priced housing because people cannot move up the housing ladder. The housing shortage gets shifted downward, and people begin to drop out of the bottom of the market.

A partnership approach with business and labor should be encouraged to develop innovative solutions to the state's housing problems.

Human capital investment, of course, should not be the only criteria that decision-makers use when allocating the state's resources. People are more than human capital or human versions of machines. The needs of people for housing, health, education, child care and training deserve to be met as a matter of social justice. The purpose of this paper is to demonstrate that they also should be addressed as a matter of economic development.

Through budgeting and other policy decisions, the state can develop a strategic plan that will promote effective investments in human capital to ensure Massachusetts' competitiveness in the world economy.

The financial resources of Massachusetts state government now are severely constrained. Budget-makers face many difficult choices. In this environment, it is especially important that priority be given to programs that represent strategic investments in the future. The Senate Committee on Ways and Means in the past has taken a leadership role in developing long-range social and economic policy through the state budget. As a committee of the Senate, the Special Committee on Long-Range Policy Planning urges the Senate Committee on Ways and Means to consider using the fiscal 1990 budget to develop a plan for investing in human capital. This plan would identify specific programs and policies that represent significant investments in human capital. The Long-Range Policy Planning Committee offers its assistance and support should the Ways and Means Committee choose to develop such a plan.

FOOTNOTES

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